

DIRECT TESTIMONY

OF

ALAN D. TORRES

ON BEHALF OF

SOUTH CAROLINA ELECTRIC & GAS COMPANY

DOCKET NO. 2009-293-E

RECEIVED

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Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Alan D. Torres and my business address is the Virgil C. Summer Nuclear Station, Post Office Box 88, Jenkinsville, South Carolina 29065.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by South Carolina Electric & Gas Company ("SCE&G") as the Manager of Construction for Virgil C. Summer Nuclear Station ("VCSNS") Units 2 and 3 (the "Units").

Q. WHAT ARE YOUR DUTIES AS THE CONSTRUCTION MANAGER FOR UNITS 2 AND 3?

A. I am responsible for coordinating the construction portion of the Engineering, Procurement, and Construction Agreement (the "EPC Contract") entered into between SCE&G and Westinghouse Electric Company, LLC and Shaw ("Westinghouse/Shaw") under which the Units will be built. I am also charged with overseeing construction of the Units

1 and ensuring that oversight activities related to the project are properly
2 conducted and are sufficiently comprehensive.

3 **Q. HOW LONG HAVE YOU BEEN EMPLOYED WITH SCE&G?**

4 A. I have worked for SCE&G for 33 years. Prior to becoming the
5 Construction Manager for Units 2 and 3, I served in the following
6 capacities:

7 1976-1980: Construction Oversight for Unit 1—inspecting, testing,
8 and reviewing various aspects of installation and construction to ensure
9 compliance with appropriate professional standards.

10 1980-1989: Non-Destructive Examination and In-Service Inspection
11 Supervisor—supervising mechanical, welding, and nondestructive testing
12 of safety-related equipment, supervising welding qualification and testing,
13 and developing hot functional testing of pipe supports, all in compliance
14 with professional standards.

15 1989-1992: Associate Manager of SCE&G Nuclear Operations
16 Quality Control Department—managing a \$5,000,000 budget and 30
17 employees to oversee quality control at the Unit 1 facility.

18 1992-1997: Quality Assurance Supervisor for SCE&G Nuclear
19 Operations Department—supervising quality assurance projects for the
20 Nuclear Operations Department, which involved the supervision of 20
21 auditors.

1 1997-2007: Manager of Planning and Outage Management—
2 planning and implementing online and outage work activities and managing
3 all outage modifications.

4 **Q. DO YOU HOLD ANY PROFESSIONAL CREDENTIALS?**

5 A. Yes. Since 1976, I have been certified as an Architectural
6 Technician. I also hold the following certifications:

7 American Welding Society 1980

8 Electric Power Research Institute

9 Level III Visual Inspector 1982

10 All Non-Destructive Examination Disciplines

11 In Accordance with the Standards of the

12 American Society for Non-Destructive

13 Testing 1982

14 Certified Lead Auditor 1992

15 Senior Reactor Operator Certification 1995

16 **Q. HAVE YOU SERVED IN ANY CAPACITY WITH ANY**
17 **PROFESSIONAL ORGANIZATIONS OR OTHER COMMITTEES?**

18 A. Yes. From 1997 until 2001, I served on the Nuclear Oversight
19 Committee for the Seabrook Nuclear Power Plant located in Seabrook, New
20 Hampshire. I have also served on several benchmark teams for the Institute
21 of Nuclear Power Operations ("INPO") and I have also served on INPO
22 Evaluation and Assist Teams. These later teams conduct comprehensive

1 evaluations of plant processes and operations (Evaluation Teams) or
2 evaluations and reviews at plants related to specific focus areas (Assist
3 Teams). I recently served on the INPO New Nuclear Construction
4 Benchmark Team, as part of which we traveled overseas in March 2008 to
5 review the construction procedures of Korea Hydro & Nuclear Power Co.,
6 Ltd. in South Korea and Hokkaido Electric Power Company and the
7 Chugoku Electric Power Company, Inc. in Japan. Since 2007, I have
8 served on the construction inspection team for the Nuclear Energy Institute.
9 This team works with the Nuclear Regulatory Commission to propose new
10 regulations related to nuclear construction.

11 **Q. HAVE YOU EVER TESTIFIED BEFORE THE COMMISSION?**

12 A. Yes. I testified before the Commission in Docket 2008-196-E,
13 which was the docket in which the Company's Combined Application
14 under the Base Load Review Act ("BLRA") was considered. I testified at
15 the September 10, 2008 hearing to consider SCE&G's petition to be
16 authorized to begin construction work on certain parts of the project before
17 a final decision and siting certificate was issued.

18 **Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS**
19 **PROCEEDING?**

20 A. The purpose of my testimony in this proceeding is to provide an
21 update of the construction progress of the Units.

1 **Q. COULD YOU PLEASE PROVIDE A SUMMARY OF THE**
2 **CURRENT STATUS OF THE CONSTRUCTION OF THE UNITS?**

3 A. As of the end of the second quarter of 2009, the Company and its
4 contractors remain on schedule to complete the Units by the substantial
5 completion dates of April 1, 2016 for Unit 2 and January 1, 2019 for Unit 3.
6 Since the EPC Contract was signed on May 23, 2008, all required
7 milestones as set forth in Exhibit E to the Combined Application and as
8 adjusted pursuant to the milestone schedule contingencies approved by the
9 Commission in Order No. 2009-104(A) have been completed. Of the 146
10 milestones being tracked, 33 have been completed as of June 30, 2009. The
11 project is proceeding on schedule and within budget.

12 **Q. PLEASE DISCUSS THE PROGRESS OF CONSTRUCTION**
13 **RELATED ACTIVITIES AT THE VCSNS SITE.**

14 A. The following is an update on specific tasks being conducted by
15 Westinghouse/Shaw and their subcontractors at the site itself:

- 16 • Construction Access Road – The Construction Access Road has
17 been completed and the road is now in service. This road will be
18 used for heavy equipment and vehicles entering the site and for
19 the delivery of large components to the site by truck.
20 Completion of the Construction Access Road early in the
21 construction process was important to ensure the orderly and
22 efficient delivery of construction supplies and materials,

1 particularly as the pace of work increases in the coming months.
2 Completion of the road will also protect the safety of work crews
3 accessing the site by isolating large vehicles and deliveries from
4 personnel access. For these reasons, the Construction Access
5 Road was one of the items that the Company specifically
6 requested the Commission to allow SCE&G to begin
7 constructing before it received the general authorization to begin
8 construction of the Units. By granting that request, the
9 Commission allowed us to complete the road in a timely fashion.

- 10 • Railroad Track 1 Relocation and Construction – Railroad Track 1
11 is the rail line that currently serves Unit 1 and will serve Units 2
12 and 3 as they are constructed. Railroad Track 1 crosses the site
13 of Units 2 and 3 and so it had to be relocated to permit the
14 grading of the Table Top area where the Units will be built. As I
15 discussed in my testimony before the Commission in Docket No.
16 2008-196-E on September 2008, SCE&G needed to relocate
17 Railroad Track 1 during mid-2009 to support the delivery of a
18 new transformer to Unit 1 to replace the main station transformer
19 during the fall 2009 scheduled outage. Over the past nine
20 months, all required earthwork was completed along with
21 installation of a new railroad track on this line. The line has now
22 been successfully inspected by Norfolk Southern and placed into

1 service. On August 14, 2009, the new transformer for Unit 1 was
2 successfully delivered over the new line. The Commission's
3 decision in Order No. 2008-673 made it possible to complete the
4 rail relocation on schedule to support the transformer
5 replacement during the fall outage.

- 6 • Construction of Railroad Tracks 2, 3 & 4 – Railroad Tracks 2, 3
7 & 4 serve other parts of the site, including the batch concrete
8 plant and various module lay-down areas. While the
9 construction of these lines is important to support the project,
10 they were not required to be completed to support the delivery of
11 the Unit 1 transformer. Earthwork continues on Railroad Tracks
12 2, 3, and 4. They are proceeding on schedule and are expected to
13 be completed in 2010.

- 14 • The Mayo Creek Bridge –The Mayo Creek Bridge is part of the
15 new Plant Access Road that will provide access to the site for
16 work crews and other light-weight to medium-weight
17 construction traffic. Eventually, the Plant Access Road will
18 become the principal entrance for the entire site. The Mayo
19 Creek Bridge is a 250 foot concrete bridge that is a critical
20 component of the Plant Access Road. All necessary permits have
21 been obtained and construction on the Mayo Creek Bridge is well
22 underway and on schedule to be completed by January 2010.

- 1 • The Plant Access Road – All permits for construction of the Plant
2 Access Road are also in hand and work on the road is proceeding
3 on schedule. Grading on the southern end of the road, which
4 leads to the Mayo Creek Bridge, was approximately 40%
5 complete at the end of August. Grading on the northern end will
6 commence following the completion of the Mayo Creek Bridge.
- 7 • Table Top Grading – The Table Top is a 180 acre area where the
8 Units and Cooling Towers will be constructed. Grading the
9 Table Top to the appropriate contour will involve moving 4
10 million cubic yards of dirt and is one of the major components of
11 the work to be done on site in the early phases of construction.
12 Once that grading is complete, the excavation for the
13 construction of the nuclear island for each unit can begin. This
14 excavation will be followed by preparation of the rock on which
15 the sub-mat for the nuclear island will be poured. Grading of the
16 Table Top and excavation of the nuclear island are two of the
17 principal activities that must be completed to allow
18 Westinghouse/Shaw to begin pouring nuclear safety-related
19 concrete when the Combined Operating License (“COL”) for the
20 Units is issued in 2011.

21 The South Carolina Department of Health and Environmental
22 Control (“DHEC”) has issued the Storm Water Pollution

1 Prevention Permit ("SWPPP") which authorizes excavation and
2 grading work on the Table Top. The clearing and grading of the
3 Table Top is currently underway, and as of August 2009,
4 approximately 15,000 cubic yards of spoils are being removed
5 per day from the Table Top and moved to the Spoils Area.

- 6 • Other Improvements -- The expansion of the intersection of Parr
7 Road and Highway 213 to support construction traffic is
8 expected to be completed in September. The water line for the
9 Potable Water System supply to Construction City is
10 approximately ninety-five percent (95%) complete.

- 11 • Heavy Lift Derrick - Shaw continues finalization of the technical
12 and commercial reviews to support the Heavy Lift Derrick
13 selection and nuclear island excavation plan. Close attention is
14 being directed to this activity by Westinghouse/Shaw and
15 SCE&G management to ensure that selection and procurement of
16 the derrick and design and construction of its footings support the
17 project's construction schedule.

18 **Q. PLEASE DESCRIBE THE STATUS OF THE PROJECT**
19 **ACTIVITIES THAT ARE BEING CONDUCTED OFF-SITE.**

20 A. The Shaw Modular Solutions facility in Lake Charles, Louisiana, has
21 been constructed and procedural qualification and testing of fabrication

1 processes began in September 2009. Construction of the first module is
2 expected to begin by December 1, 2009.

3 The forging and pre-heat process on the Reactor Vessel ("RV")
4 Upper Shell is in progress in the Doosan manufacturing facility in South
5 Korea. SCE&G and Westinghouse representatives witnessed the initial RV
6 Upper Shell sampling and cutting of test specimens at the Doosan facility
7 that occurred June 25 through June 30, 2009. As of August 2009, the RV
8 Upper Shell was being rough machined.

9 The purchase orders for the Steam Generators have been issued and
10 fabrication of them has begun. SCE&G is in the process of reviewing the
11 Quality Plans for the Steam Generators for the purpose of adding additional
12 Owner Witness and Hold Points related to their fabrication and testing.

13 Of the 25 major equipment purchase orders for the project, 17 have
14 been issued, including most of the principal components for the nuclear
15 systems. Issuance of purchase orders means that both prices and
16 fabrication schedules have been agreed to between Westinghouse/Shaw and
17 the vendors for these items.

18 A certification of completion of the Reactor Coolant Pump ("RCP")
19 test loop construction has been received. An independent party verified that
20 the test loop successfully completed 125% of the design pressure testing via
21 a hydro test. The RCP test loop is American Society of Mechanical
22 Engineers ("ASME") certified.

1 **Q. WHAT IS THE CURRENT STATUS OF THE ENGINEERING**
2 **PROCESS RELATED TO THE UNITS?**

3 A. As of June 30, 2009, the Engineering Completion Status based on
4 the completion percentage for major plant categories is as follows:

- 5 1) Standard Plant Design – 74% complete
6 2) Site Specific Design – 23% complete
7 3) Total Design (procurement and construction planning) – 69%
8 complete.

9 Westinghouse maintains a system to track the design finalization
10 schedule for major engineering categories and to flag items where design
11 finalization is below the Westinghouse expectations. Currently,
12 Westinghouse has identified several below-expectation items or areas
13 related to activities in the categories of Nuclear Systems, Repair
14 Replacement and Automation Services, Instrumentation and Control,
15 Primary Equipment, Auxiliary Equipment, Piping, Mechanical Modules,
16 Structural Modules and Electrical/Instrumentation & Controls.
17 Westinghouse has provided to SCE&G an explanation and recovery plan
18 for each of these items and no adverse impacts on the Units' Substantial
19 Completion dates are anticipated from these items at this time.

20 **Q. WHAT IS THE CURRENT AVAILABILITY OF LABOR AND**
21 **OTHER COMMODITIES?**

1 A. The availability of labor and other commodities for the project
2 remains very good. Hiring suitable workers and trainees is not proving to
3 be a concern at this point of the construction process. Concerns about the
4 availability of specialty steels and other critical materials and components
5 for the project have abated as a result of the slow-down in construction
6 globally. The suppliers of equipment and materials for the project are
7 performing well and on schedule.

8 **Q. WHAT IS THE STATUS OF PLANNING FOR CONSTRUCTION OF**
9 **TRANSMISSION FACILITIES?**

10 A. Planning and pre-construction activities for the transmission
11 components of the project are progressing in a timely and satisfactory
12 manner. As Company Witness Byrne has testified, SCE&G's transmission
13 planning group has accelerated the schedule for constructing these facilities
14 to better reflect the needs of the project and to coordinate this work with the
15 outage schedules for Unit 1. Transmission planning is on schedule to meet
16 the needs of the project and the updated construction schedules.

17 **Q. WHAT ARE THE CHALLENGES RELATED TO THE PROJECT?**

18 A. SCE&G continues to work with the Army Corps of Engineers
19 ("ACOE") on the ACOE 404 (wetlands) permit. The ACOE has taken the
20 position that they will not issue a wetlands permit for any disturbances of
21 jurisdictional wetlands before the Nuclear Regulatory Commission
22 ("NRC") issues a Final Environmental Impact Statement for the site as part

1 of its review of SCE&G's Combined Operating License Application
2 ("COLA"). The Final Environmental Impact Statement is expected to be
3 issued in February 2011. The ACOE's position poses a problem only with
4 regard to an area of approximately 300 linear feet of stream banks
5 associated with an intermittent wetland. Because the length of the stream
6 bank slightly exceeds the regulatory threshold, it is considered to be a
7 jurisdictional wetland. This wetland is within the area in which the Cooling
8 Towers will be built. To comply with the ACOE position,
9 Westinghouse/Shaw is finalizing a plan that will not disturb the wetlands in
10 the Cooling Tower area until the Final Environmental Impact Statement is
11 approved and the required wetlands permits are issued. This plan is
12 practical and feasible and will allow construction to proceed within the
13 applicable milestone schedule and approved cost schedules.

14 **Q. WHAT ACTION IS THE CONSTRUCTION PLANNING GROUP**
15 **TAKING WITH REGARD TO THE ISSUE RELATED TO THE**
16 **NRC'S CONSIDERATION OF REVISION 17 OF THE DESIGN**
17 **CERTIFICATION DOCUMENT FOR THE AP1000 UNIT?**

18 **A.** As Company Witness Byrne testified, the current schedule for the
19 NRC to issue a final ruling on Revision 17 of the design certification
20 document for the AP1000 unit does not support the scheduled date for
21 issuance of the COL for Units 2 and 3 by several months. If not addressed,
22 delays in issuance of the COL could interfere with the substantial

1 completion date for Unit 2. In response, the Construction Planning Group
2 is preparing contingency plans to accelerate the construction plans to absorb
3 any delay in the date that the COL is issued. Specifically, the Construction
4 Planning Group is identifying work which is presently scheduled to be done
5 after the COL is issued that can properly be done beforehand. Accelerating
6 completion of this work could free up resources that can then be used to
7 accelerate work on other key items later in the schedule. The Construction
8 Planning Group is also identifying tasks currently scheduled to be done in
9 series after the COL is issued that can be done in parallel. This could create
10 flexibility to allow acceleration of the schedule. In addition, the group is
11 evaluating the possibility of expanding the work week at critical points in
12 the schedule to accelerate the construction timetable. I would emphasize
13 that this is contingency planning only. We do not know for certain that the
14 schedule for the issuance of the COL will change or if so, how much it will
15 change. SCE&G wants to be prepared to respond positively to any
16 schedule changes if they occur and believes that reasonable and effective
17 options to do so can be found.

18 **Q. WHAT IS YOUR OPINION REGARDING RELATIONSHIPS WITH**
19 **WESTINGHOUSE/SHAW AND THE PROGRESS OF THE**
20 **PROJECT?**

21 A. SCE&G's relationship with Westinghouse and the Shaw project
22 teams has developed well. Westinghouse and Shaw continue to work

1 closely with SCE&G in all aspects of the project and lines of
2 communication seem good. All parties have been in close working contact
3 with the NRC and DHEC to ensure open communication and timely
4 response to any concerns or questions. SCE&G expects this level of
5 cooperation to continue to ensure that all aspects of the project are
6 conducted in a timely manner and within the approved schedule and cost
7 estimates.

8 **Q. DOES THIS CONCLUDE YOUR TESTIMONY TODAY?**

9 A. Yes.